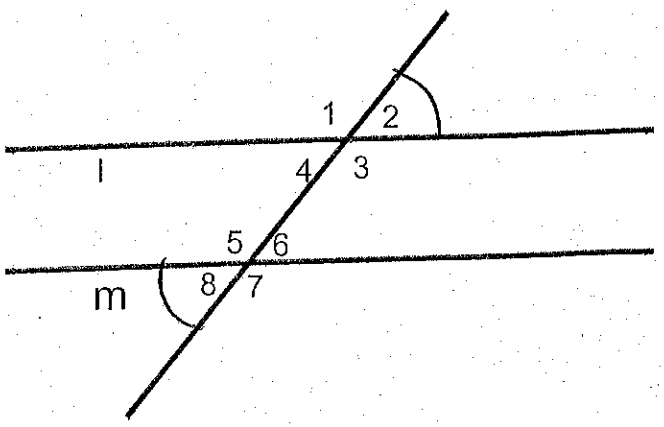
Name Key Date

202 Proving lines Parallel

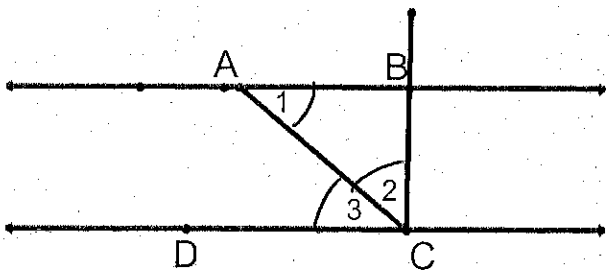
1. Given: $\angle 2 \cong \angle 8$
Prove: l || m



Statements	Reasons
1) ~	1) Given
2) $l \parallel m$	2) If alt ext $\angle$s $\cong$, then $\parallel$

2. Given: $\angle 1 \cong \angle 2$

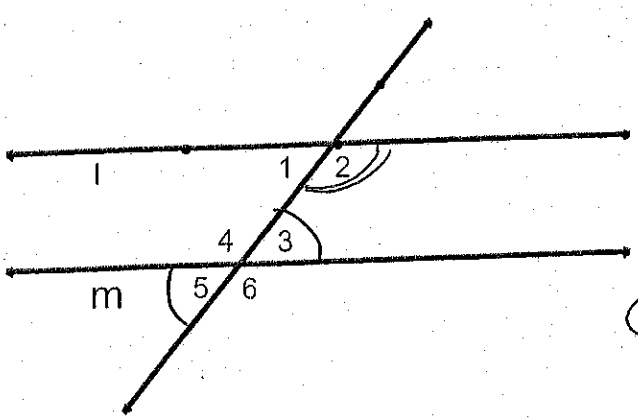
$\overrightarrow{CA}$ bisects $\angle DCB$
Prove: AB || DC



Statements	Reasons
1) ~	1) G
2) $\angle 2 \cong \angle 3$	2) Def $\angle$ Bis
3) $\angle 1 \cong \angle 3$	3) Trans.
4) $\overline{AB} \parallel \overline{DC}$	4) If A. I $\angle$s $\cong$, then $\parallel$

3. Given: $\angle 5$ and $\angle 2$ are supplementary

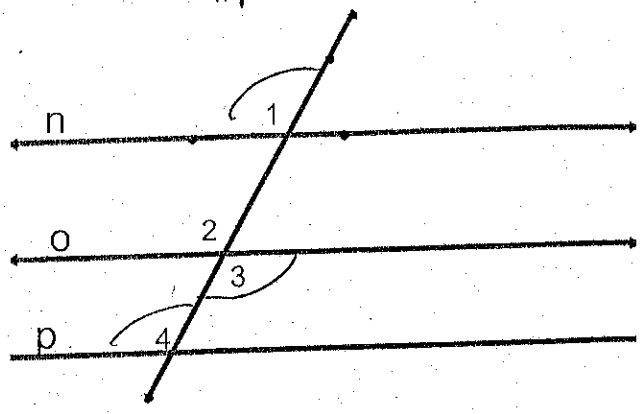
Prove: l || m



Statements	Reasons
1) ~	1) Given
2) $\angle 5 \cong \angle 3$	2) Vert $\angle$s $\cong$
3) $m\angle 5 + m\angle 2 = 180$	3) Def supp
4) $m\angle 3 + m\angle 2 = 180$	4) Subst
5) $\angle 3$ & $\angle 2$ are suppl	5) Def suppl
6) $l \parallel m$	6) If cons. int $\angle$s supp, then $\parallel$

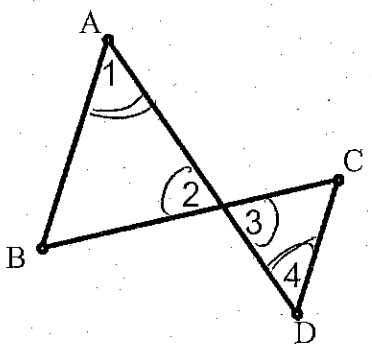
4. Given: $\angle 1 \cong \angle 3$; $\angle 4 \cong \angle 3$

Prove: n || p



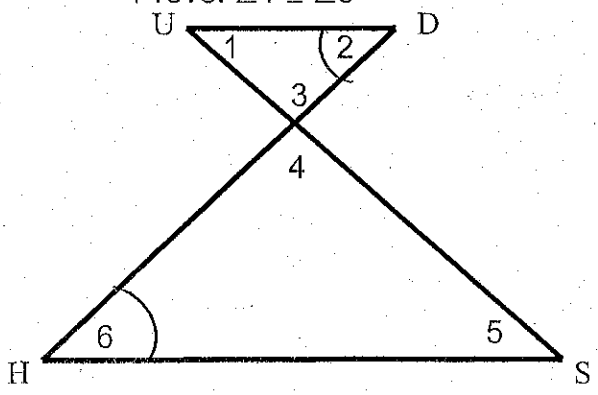
Statements	Reasons
(1) ~	
(2) $\angle 1 \cong \angle 4$	(2) Subst
(3) n // p	(3) If corr $\angle$s $\cong$, then //

5. Given: $\angle 1$ and $\angle 2$ are complementary
$\angle 3$ and $\angle 4$ are complementary
Prove: $\overline{AB} \| \overline{CD}$



Statements	Reasons
(1) ~	
(2) $\angle 2 \cong \angle 3$	(2) Vert $\angle$s $\cong$
(3) $\angle 1 \cong \angle 4$	(3) Compl. $\cong$ $\angle$s $\cong$
(4) $\overline{AB} \| \overline{CD}$	(4) If Alt $\angle$s $\cong$, then //

6. Given: $\angle 2 \cong \angle 6$
Prove: $\angle 1 \cong \angle 5$



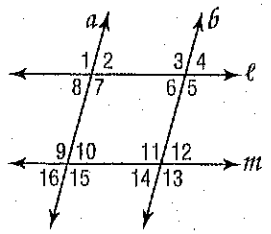
Statements	Reasons
(1) ~	(1) G.
(2) $\overline{UD} \| \overline{HS}$	(2) If Alt $\angle$s $\cong$, then //
(3) $\angle 1 \cong \angle 5$	(3) If //, Alt $\angle$s $\cong$

NAME _____ DATE _____ PERIOD ____

3-5 Skills Practice

Proving Lines Parallel

Given the following information, determine which lines, if any, are parallel. State the postulate or theorem that justifies your answer.



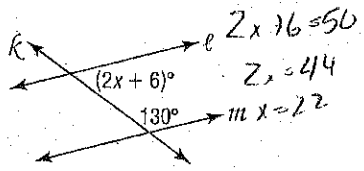
1. $\angle 3 \cong \angle 7$ a ∥ b alt int

2. $\angle 9 \cong \angle 11$ a ∥ b corr.

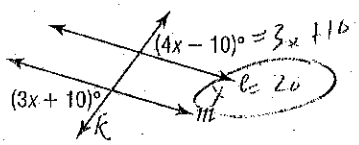
3. $\angle 2 \cong \angle 16$ ℓ ∥ m alt ext

4. $m\angle 5 + m\angle 12 = 180$ ℓ ∥ m cons int

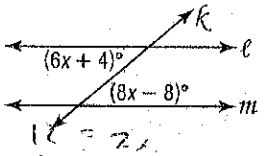
Find x so that $\ell \parallel m$.

5. 

2x + 6 = 50
2x = 44
x = 22

6. 

4x − 10 = 3x + 10
x = 20

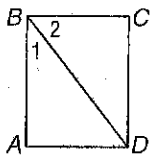
7. 

12 = 2y
6 = y

8. **PROOF** Provide a reason for each statement in the proof of Theorem 3.7.

Given: $\angle 1$ and $\angle 2$ are complementary.
$\overline{BC} \perp \overline{CD}$

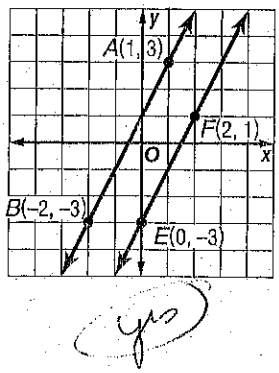
Prove: $\overline{BA} \parallel \overline{CD}$



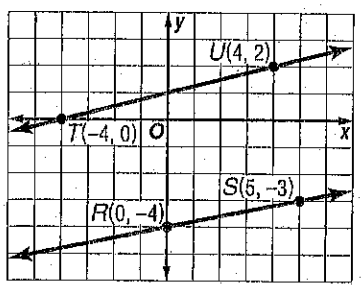
Proof:

Statements	Reasons
1. $\overline{BC} \perp \overline{CD}$	1. Given
2. $m\angle ABC = m\angle 1 + m\angle 2$	2. ∠ + Post
3. $\angle 1$ and $\angle 2$ are complementary.	3. Given
4. $m\angle 1 + m\angle 2 = 90$	4. Def compl
5. $m\angle ABC = 90$	5. Subst
6. $\overline{BA} \perp \overline{BC}$	6. Def ⊥ lines
7. $\overline{BA} \parallel \overline{CD}$	7. 2 lines ⊥ to same line are ∥

Determine whether each pair of lines is parallel. Explain why or why not.

9. 

6/3
4/2
yes

10. 

2/8
1/4
no
1/5

Lesson 3-5